



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Jerome H. Lemelson ) Art Unit 111  
Serial No: 07/696,747 ) Examiner: P. Rosenberg  
Filed: 5/7/91 )  
For: REACTION APPARATUS )  
AND METHOD )

Honorable Commissioner of  
Patents and Trademarks

Washington, D.C. 20231

Sir:

DECLARATION OF JEROME H. LEMELSON

Sir:

JEROME H. LEMELSON declares:

1. He is the named applicant in the above identified patent application and he conceived the invention disclosed and claimed therein prior to August 19, 1966 the filing date of McLaughlin, U.S. Patent 3,429,691 as shown in attached Exhibit A which comprises copies of 140-49 and 151 of one of applicant's notebooks in which his inventions and ideas were recorded in the form of written descriptions and drawings in his own handwriting.

2. The following witnesses read and understood those pages of applicant's notebook on which their initials or signatures appear and as indicated in the notebook:

<u>Initials or Signature</u>	<u>Name</u>	<u>Identification</u>
Isidore Match (signature on p.145 as wit- nessed pp.138-145)	Isidore Match	A chemical engineer and a patent attorney at the time he read and understood the inventions on pp.138-145 of applicant's notebook.
EJW	Ernest J. Waldmeyer	A college graduate at the time he witnessed applicant's notebook with sufficient technical qualifications to understand applicant's invention as disclosed.
RJK and R. Kraushaar	Robert J. Kraushaar (deceased)	Physicist and Engineer at the time he witnessed applicant's notebook having sufficient technical qualifications to understand applicant's invention as disclosed.

<u>Initials or Signature</u>	<u>Name</u>	<u>Identification</u>
JB and J. Berliner	Jerome M. Berliner	An electrical engineer and patent attorney at the time he read the notebook descriptions, of sufficient technical qualification to thoroughly understand applicant's invention(s) as disclosed.
E.T.	Elaine Tabasco	Administrative Assistant and secretary to Mr. Lemelson who had sufficient technical qualifications to have understood applicant's invention as disclosed.
L.E.R.	Louise E. Radek	Administrative assistant and secretary to Mr. Lemelson who had sufficient technical qualifications to have understood applicant's invention as disclosed in his notebook.

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3. Applicant's Exhibit A (pp.140-149 and 151 of his notebook) includes on page 140 thereof a drawing (Fig.1) of an electron gun apparatus 10 which is similar to the electron gun apparatus in the instant application. The electron beam generated by the electron gun forms a moving plasma when the disclosed solid, vapor or gas particles are admitted to the beam, as indicated on p.141, which plasma is directed into chamber 12 .

4. In the descriptive material relating to Fig. 2 on page 141 of applicant's notebook written in applicant's handwriting is reference to material to be vaporized by the electron beam generated across tungsten electrodes of the type employed in the electron gun of Fig. 1. Such material is defined as a wire or tube containing powder (particles of matter) which powder, as illustrated is continuously fed to the opening in the tungsten electrode where the beam or directed plasma is generated in the gap (e.g. defined as a "hole or separation in the end of the electrode"). Directly above such descriptive writing applicant noted that the "roller drive for (feed) wire may also comprise "a pump or other feed for particles ,vapor,etc.". Powder or particulate matter to be reacted on in the electron beam or plasma is also taught at other portions of the notebook disclosure.

5. In the last paragraph on page 142 of Exhibit A applicant discloses in his witnessed notebook that "Chemcial reations may take place in the beam..or by means of the beam and material therein..."

6. In the first paragraph on page 143 of applicant's notebook applicant discloses "chemically changing material deposited by the beam may be effected by..beam energy..by..one or more auxilliary beams generated in the gun...or chamber".

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7. The use of an optical maser or laser to vaporize material or materials per se or in cooperation with the electron beam is also taught in the last paragraphs of pages 143 and 147 and on page 148 of Exhibit A.

8. In the fourth paragraph denoted (e) on page 148 of Exhibit A applicant teaches to form "new compositions" of material subjected to the electron beam or high energy plasma. Applicant also teaches in the same paragraph the use of the high temperature beam to so react on two or more materials admitted there-to to form "new composition(s)" thereof.

9. In Fig. 1 on page 140 of applicant's notebook there is disclosed the controlled movement of a substrate or conveyance (table or platform 41) with respect to the beam stream of charged particles or plasma to convey material reacted on and deposited by such flow away from the area of intersection. Such movement and the operation of the beam as well as the flow of particles is effected under the control of a programmer or computer 11.

10. Based on the witnessed notebook disclosures defined by Exhibit A , proof is presented herein that applicant conceived and recorded the invention(s) defined in the instant application Serial Number 07/696,747 prior to August 19,1966 the filing date of McLaughlin. Such disclosures, as noted above, include the generation of high temperature plasma radiation, directing such plasma radiation to a reaction zone (e.g. a portion of the plasma defining electron beam), continuously flowing particles of matter to such reaction zone and transferring sufficient energy or heat from the high temperature plasma to such particles to

cause a high temperature reaction to occur as broadly set forth, for example, in independent claim 1 of the instant application serial number 696,747.

11. Applicant asserts that he made the inventions defined in Exhibit A in the United States of America prior to August 19, 1966 . . .

12. On November 25, 1964 applicant filed patent application serial number 422,875 , a parent application to the instant application which issued as U.S. Patent 3,461,347 on August 12, 1969.

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Disclosed in the specification thereof is the employment of a high temperature radiation beam, such as an electron beam or a laser beam to react on and create a chemical change in matter fed to the beam in a reaction chamber in the presence of a chemical which is flowed or introduced into such chamber and partakes in the chemical reaction. Reference is made to lines 21 to 39 of column 11 of the specification of U.S. Patent 3,461,347 in which is taught a method of reacting on matter , such as defined by a strip, strips or wire of various metals or alloys thereof (lines 20,21)...moved through an opening or openings in a wall of a chamber (line 23) from a supply thereof.. and subjected to the high temperature of an electron beam (e.g. a beam of charged particles or plasma) as defined at line 29...wherein a dielectric film is formed on such material resulting from a chemical change in the composition of its surface stratum (lines 31-35)...as it is fed past the electron radiation beam through such chamber.

13. In the penultimate paragraph of column 11 of U.S. Patent 3,461,347 applicant teaches that..."Steel (wire or cable) may be continuously processed as hereinbefore described (emphasis added). Such hereinbefore described process is set forth above and broadly defines the invention of the instant application involving the use of a high temperature plasma, such as generated . when an electron beam is generated to effect a high temperature reaction such as a chemical reaction with respect to the material (metal strip or wire) admitted to the plasma or electron beam.

14. At lines 13-20 of column 11 of the specification of

U.S. Patent 3,461,347 applicant teaches the vaporization of metal (with or without ...anodizing.....and..."formed as described ...on a continuous basis...by completely or partially converting each layer..." One of the described techniques is set forth above wherein an electron beam or plasma defining beam effects the chemical process of anodizing all or part of a layer of metal. Such chemical process is one in which metal, the reaction material is converted to the oxide of the metal at temperature.

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15. At lines 52 to 57 of column 10 of the specification of U.S. Patent 3,461,347 applicant teaches to form aluminum or aluminum alloy in the shape of a wire, strip or other shape (emphasis added) ."the exterior surface of which is..oxidized as it is formed...by exposing same to the oxidizing carriers of fluorine or the like.." In view of the later teaching at lines 20-30 of column 11 of the '347 patent to use an electron beam to effect the formation of such an oxidized surface on any shape of reaction material (e.g. as defined by.."or other shape") it is submitted that further indication is had in the disclosures of applicant's parent U.S. Patent 3,461,347 that such process or method of effecting a chemical reaction with respect to articles of a variety of shapes by disposing same in a plasma or electron beam to heat same and form an oxide of at least a portion of the reaction material or metal was reduced to practice in 1964.

16. The application from which U.S. Patent 3,461,347 issued was filed in 1964 before the filing date of McLaughlin U.S. Patent 3,429,691 and constitutes a parent application of the instant patent application.

17. The disclosures set forth above which are found in the application which became U.S. Patent 3,461,347 and in applicant's notebook pages defined as Exhibit A predate the filing date of McLaughlin U.S. Patent 3,429,691 and broadly define the instant claimed invention. As such, they provide applicant with ample indication on the record that he made the broad instant invention prior to the filing date of McLaughlin and may properly swear

back of such reference.

18. All of the acts described in applicant's notebook and defined in particular in Exhibit A were performed in the United States of America.

19. All statements made herein of his own knowledge are true, and all statements made on information and belief are believed to be true; and further, these statements were made with the knowledge that willful false statements and the like, so made, are punishable by fine or imprisonment, or both, under Section 1001 of the United States Code, and such willful false statements may jeopardize the validity of any document and patent resulting therefrom.

November 19, 1991  
Date

Jerome H. Lemelson  
Jerome H. Lemelson

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